ous termination. The basement is of granite, and contains a *cubical* apartment (always), the shrine for the god. The upper part is usually of solid brick, plastered with chunam, and although in many cases 1,000 years old, as sharp and perfect as when first erected. The decoration, story above story, is a repetition of miniature shrines, displaying sometimes, on each face of the Vimana, from 500 to 1,000 statues.

The Gopura is always pyramidal, like the Vimana, ten or twelve stories in height, but has a way through it, and invariably a *flat* top. There is one of these in front of every Vimana.

A Mantapa, generally columnar, is also usually attached to each Vimana. Some of these are of wonderful extent; one is 4,000 feet in length, consisting of a wide middle aisle, so to speak, and two smaller aisles on each side. The middle space is covered by bracketting the stones in a curious manner, the arch being always avoided in Indian architecture where possible.

The Choultry in some cases is of enormous size, having 100 columns in length and 10 in width, or 1,000 columns in all: they are, indeed, popularly called "halls of a thousand columns;" and this is usually literally true. When it is remembered that each of these columns is ornamentally carved from capital to base, that these carvings are usually all different in design, and that the material used is granite, it must be admitted that they are wonderful works.

The inclosures around the temples were added one beyond another, as their reputation increased or money became available. The great hall is usually placed in the third enclosure. Enormous stones were sometimes used: the granite door jambs of one unfinished gateway are 44 feet high.

The principal architectural defect in these groups of buildings is the comparatively small size of the central object, the temple proper: there are numerous enclosures and lofty gateways leading to what seems nothing. At Tanjore and some other places, however, it is not so; the Vimana is the principal object, as it ought to be. As to the supposed connection between Egyptian and Indian architecture, it may be mentioned, without attaching much importance to it, that the temple at Carnac, for example, has the central object low, with several inclosures, one round the other, and has lofty propyla, or gateways; these Indian temples, too, resemble in arrangement the temple at Jerusalem, as described by Josephus. There is nothing to be gained from these buildings for our own use; it may be mentioned, however, that the art in them becomes more pleasing as they are better understood. Not many years ago, Gothic architecture was considered a mere jumble, without order or regularity; but we now see it differently. The Indian temples show the variety of forms which stone may be made to take. At one time the Roman details were thought the only legitimate forms; then it was found that these were but a debasement of the Greek, and the Greek should alone be copied; and now the Gothic forms alone are imitated. In truth, however, the forms which may be given to stone are myriad-fold. There is one very consolatory impression to be derived from the Indian temples. These were erected by an uncivilized people—without a literature, without a history. But they went to their heads instead of their books, and thought only of the effect that could be produced. We at the present day are so superior to them, said Mr. Fergusson, that if we took the same course we must immensely surpass them.

Mr. Tite said that, after having examined Mr. Catherwood's drawings of buildings in Yucatan and other parts of Mexico, he had endeavoured, with much care, to trace the people philologically, but had failed. He fancied, however, that there was a connection between them and the Indian temples. Notwithstanding the enormous distance which separates them, there is a certain kind of resemblance to the buildings of Java which deserved investigation. Of its connection with Egyptian architecture he thought but little.

Mr. P'Anson thought the Government or the East-India Company should investigate the architectural works of India.

Mr. Fowler reminded the Institute of their possession of a very interesting series of native drawings, illustrative of Indian antiquities, and agreed in the necessity of the Government or the Company preserving records of the buildings.—Mr. Godwin said, with reference to this, that the periodical press in India had become awakened to the importance of preserving and illustrating the architectural monuments of the country, and were pressing it upon the Company.——Mr. Fergusson said something had been done by the Company; but the late wars had checked the operations.

In reply to an inquiry by Mr. Tite, Mr. F. stated that *chunam* is simply burnt oyster shells,—that is, pure lime without any admixture, kneaded with a small quantity of water. It is rubbed when moist, and takes a high polish.——Mr. Wild said the strength of chunam depended greatly on the amount of labour bestowed in working it.

Mr. Cockerell was anxious to express his thanks for having been introduced to a new branch of the architectural family, so different from that found in Northern India. With such co-operators as Mr. Fergusson, the Institute records would become a treasury of art of no small value. As to the analogy of styles, it was worth noting that, difficult as it was to connect nations by their language, the architecture of all countries showed that men have always been the same. The Deity had not left himself without a witness. The climate would make some difference in the buildings raised, so would the materials: but the same religious feelings which had led crowds from all parts to Notre Dame of Loretto, was to be traced in the added enclosures of increasing size around the Indian temples described by Mr. Fergusson.

FLUVIAL WATERS AND SEWAGE.

Not many regions of earth are blessed as the British Isles with a bounteous and continuous flow of rills, streams, and rivers, and this privilege is conducive not only to the fertility of the soil, and the beauty of the landscape, but especially to the health of man. It is allowed that no sources of water are so well adapted to the purposes of life as nature seems to have designed from the amplitude of provision; and yet mankind seem hitherto to have paid little attention to the *conserrancy* of these vital supplies. To those resident in our genial clime, the value of these advantages are scarcely appreciated, but he who has wandered through "a barren and dry land where no water is," is forcibly struck with the beneficence of Providence in this particular, when he reverts to this cereal soil, and its rivers of living water. In Australia and her boundless tracts of wood and plain, the softness of the clime is of little avail, from the paucity of rivers; and those parts where settlements have been made, are selected from the fact that they are absolved from the unspeakable misery of drought by this first natural postulate for habitation—a river.

From this circumstance, it is clear that the great continent of New Holland never can be a very populous, although it may be a pastoral country, for there rain falls not in quantity sufficient to reserve tanks for the nutriment and accommodation of the cattle and the stranger.

In early ages this country fared well as to its flow of water, but since population has multiplied so exceedingly, the effects of neglect have seriously impaired the purity of our fluvial waters.

It is not twenty years since sea-going vessels sent only up to Vauxhall at ebb tide for sea store; and the Thames water was accounted the best in the world for the purpose.

Now the state of the river renders it hardly eligible at Twickenham. As the community has increased, so have habitations; and the smallest tributary of the Thames is, according to its volume, hardly less vitiated than the great confluent torrent. Along the courses of the Wandel, Mole, Wey, Gode, Loddon, Kennett, Evenrode, Wainrush, Ock, Evesham, and multifarious rills which flow into the Thames, how many factories and mills (fulling, dye, stuff, and others), how many homesteads, farms, mansions, hamlets, villages, and towns discharge their fœculence into their several and separate currents!

All these combining, progress through still larger communities, and from the first to the last no care hath up to this day been taken to preserve for the people the purity of that element which was evidently intended by the Creator to be the healing nutriment of his creatures.

To preserve the quality of the main trunk, it is first necessary to guard the tributary conduits; and this cannot be done without diverting from the natural fall (the course of rivers) all pollutions of what kind soever, nor without enacting municipal laws for the regulation of all sewage and drainage.

So much has been elicited from discussions and treatises originating in the great sanitary movement, that it is not necessary to iterate modes which have been divulgated of effectuating so great a benefit; but perhaps it may not be out of place to observe, that as to the great metropolis, a place suggests itself to every reflective mind for its sewage as the one only practicable, without great expense, and that I will try to develope in but few words.

In the first place, it is desirable to retain, and to improve where requisite, the present system of sewers, and, if they do not work well, this is mainly chargeable to the deficiency of water. As the river is the lowest and most natural outlet for the whole reticulation, it will be requisite, in order to preserve those sewers that disembogue into it, to take a lower range; therefore the line of the *main sewer* should be in the bed of the river.

As there are several parts of the town near the river bank (such as Southwark, Pimlico, &c.), 5 or 6 feet *below high-water mark*, it will be requisite to sink the *main conduit* below that level say 10 feet.

For this purpose a main sewer should be constructed of brick and cement from Westminster-bridge on the north side, as far as the "Shades," near London-bridge, to be built intermediate between high and low-water mark; and for this purpose a line of coffer-dams should be struck in to the extent of 200 or 300 yards at one reprise. The tunnel or sewer (which might be erected in an open cutting) being completed, the piles might be drawn, and so on in continuation.

Westward of Westminster the work must be continued by tunnelling past the Houses of Parliament on the north side, and thence westward through the Lots towards Fulham in an open cutting; this would suffice to take all the sullage of these parts. In like manner from London-bridge, and to clear it on the north end, a tunnel should also be continued eastward towards the open spaces at Limehouse, or even Plaistow level, at which point such works as might be requisite for exhausting the sewer, disinfecting and desiccating, should be erected.

Of the value of such works, and the feasibility thereof, enough has been said; therefore it is not necessary to add more than that the smaller expense and greater promptitude of this plan must give it the preference before those of *centripetal tunneling*, which would require the total subversion of all the existing metropolitan sewers.

This main sewer, or cloaca, need not be sunken more than three or four feet below the slime of the river's bed, and into it all the sewers which now discharge their flow into the river should be also graduated beneath the bottom exposed at low water: no interruption could thus be caused to navigation or commerce; but, on the contrary, those foetid, slimy shoals which disgust the passenger might be removed, and a strand remain approachable on the ebb of tide.

With reference to wharfages, it is obvious that nothing can be more unfavourable than the present state of the river, which is wasteful of great natural facilities, obstructive of traffic, and prejudicial to health.

The level of the main sewer being perhaps 20 feet under that of Thames-street, the portion which passes through densely-populated places must be tunneled: for the rest, the construction might be in an open trench, leading to that locality, near or beyond Limehouse, most available for the attainment of a large area whereon to plant machinery for raising the sullage into a tank or reservoir adequate to the process of disinfection, &c.

On the Surrey side of the river a similar cloaca should be formed to receive the tribute

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